Harrison Lake
2008

Harrison Lake is an 82-acre impoundment located on U.S. Fish and Wildlife Service land in Charles City County. Harrison Lake serves as the main water supply for the Harrison Lake National Fish Hatchery. The lake provides anglers with a peaceful setting to try their luck on a variety of fish species. The lake is a valuable public resource for the Charles City County area. Access to the lake is free with the lake being open during daylight hours only. Facilities include a gravel boat ramp, courtesy pier and a few small fishing piers located from the peninsula adjacent to the dam.

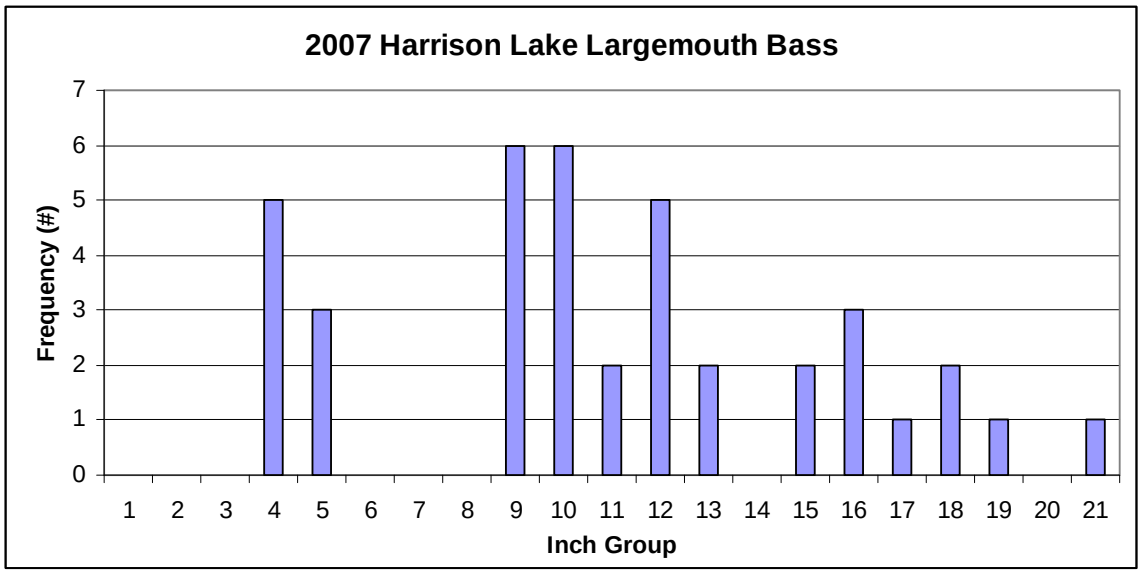
The Virginia Department of Game and Inland Fisheries sampled Harrison Lake on May 16, 2007. A full community sample was conducted to observe the present fishery. The electrofishing effort of 3,600 seconds (1 hour) was used to attain a representative sample. Three twenty minute runs were conducted. The water temperature was 21°C (70°F). Electrofishing effort consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 4 foot depth range. Effort was made to stick to the bank and shoreline brush as close as possible. The sample revealed a diverse assemblage with 15 species collected. The most abundant species were the bluegill, redear sunfish, largemouth bass, creek chubsucker and warmouth.

Table 1. Summary of the primary fish species collected by electrofishing of Harrison Lake, May 16, 2007.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	39	21.3"	11.5"
Bluegill	346	8"	4"
Black Crappie	14	10.1"	8.1"
Redear Sunfish	61	12.5"	7.1"
Chain Pickerel	22	16.7"	8.9"
Bowfin	14	25.4"	18.5"
Warmouth	35	7.6"	5.6"

Harrison Lake provides a fair to decent bass fishery. A total of 39 largemouth bass were collected. The CPUE (Catch Per Unit of Effort) for largemouth bass was 39 bass/hr. This catch rate is below the rate of most impoundments within the region. Data from the last electrofishing survey was not available for a comparison between samples. The size distributions of the collected bass can be seen on the enclosed length frequency graph. The majority of the bass sample consisted of bass in the 9 to 13 inch range. The high proportion of bass in this size range (21 of 39 bass, 53.8%) shows what the average fisherman will most likely be catching. The assemblage of older bass (15 to 19 inch range) most likely represents a combination of a few year-classes. The sample showed some fair recruitment from the 2006 year class with a total of 8 bass in the 4 – 5 inch range. The average sized bass measured 11.5 inches. Our sampling efforts are just a representative picture of the fish community collected along the shoreline on May 16, 2007. There may be larger bass that eluded the shocking boat by hanging in deeper water or escaping from the electric field.

Figure 1. Length frequency of largemouth bass collected from the electrofishing of Harrison Lake, May 16, 2007 (N = 39, CPUE 39/hr)

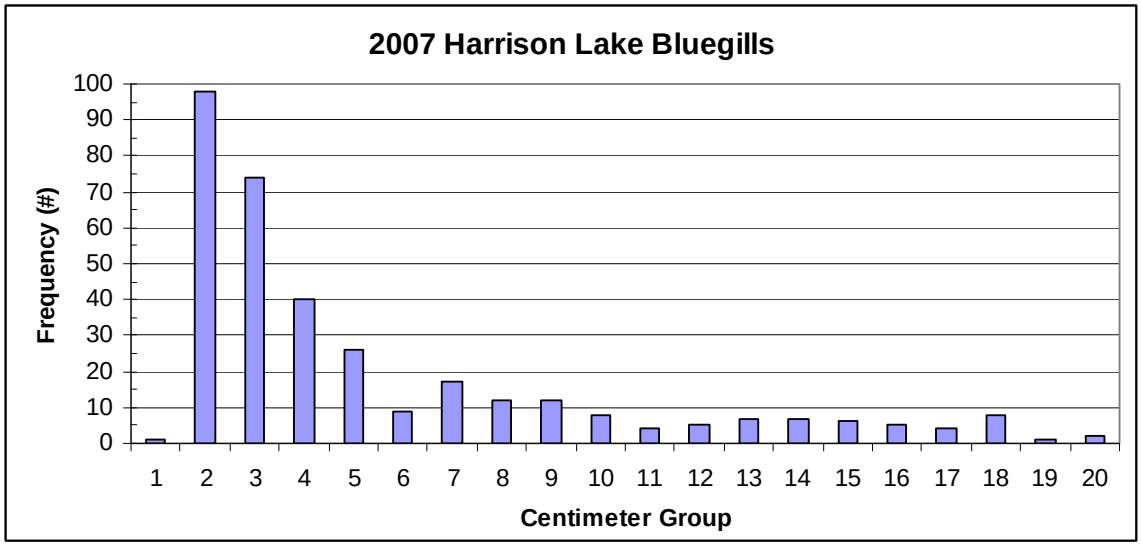


With largemouth bass being the most popular game fish in this country, it has been considered that a “preferred” bass is one that is over 15 inches in length. It is through this size classification that population dynamics are analyzed. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). The sample showed a PSD value of 55, which is a direct reflection of the 17 quality-sized bass. A total of 31 were of stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of bass of stock-sized bass that are also equal to or greater than 15 inches in length**.** The RSD-P value of 32 is a direct reflection of the collection of 10 preferred-sized bass.

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. A higher relative weight value indicates fish with a better body condition. The overall relative weight value was 93. The relative weight values for stock, quality, preferred and memorable-sized bass (>8", >12", >15" and >20") were 93, 92, 95 and 96 respectively. The bass are experiencing some difficulties in finding enough prey items to forage upon. The largest bass measured 21.3 inches and weighed 5.4 pounds.

Harrison Lake has a bluegill fishery that is dominated by fish less than 5 inches in length. Our electrofishing effort collected 346 bluegills. The CPUE of 346 bluegills/hr is rather high when you look to the limited abundance of largemouth bass. The size distribution can be seen on the attached length frequency graph. All bluegills were measured by the centimeter group and are displayed by them as well. Bluegills ranged in size from 1 to 20 centimeters (0.5 - 8 inches). The majority of the bluegills were within the 2 to 5 centimeter range (1 – 2 inches). The PSD for bluegill is the proportion of bluegill over 8 cm (stock size) that are also at least 15 cm (quality size). The bluegill PSD of 32 is a reflection of the 26 quality-sized bluegills in the 15 to 20 centimeter range (6 to 8 inches). The PSD value is within the optimal PSD range of 20 to 40 that would represent a balanced fishery. A total of 81 stock-sized bluegills were collected.

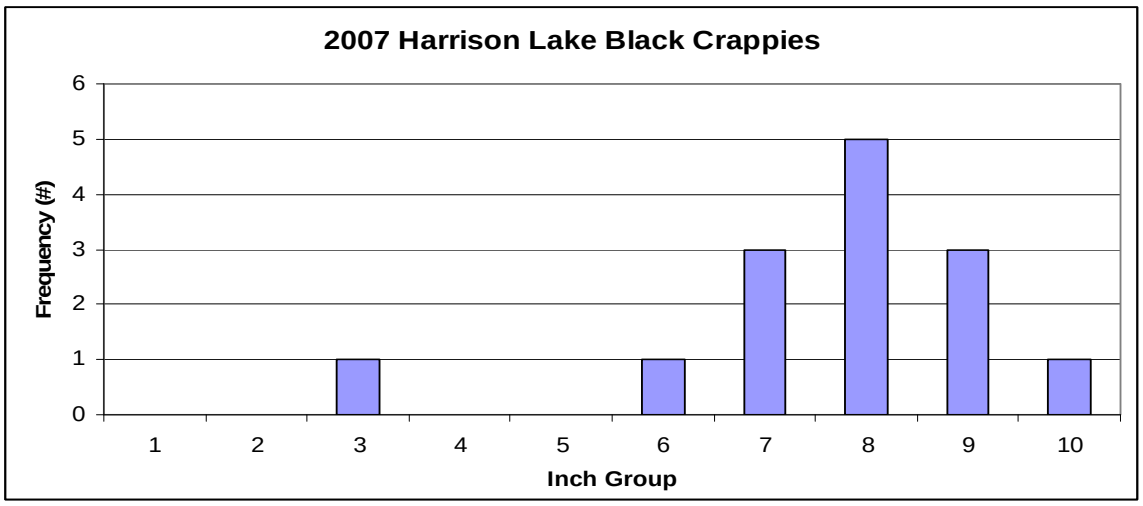
Figure 2. Length frequency of bluegills collected from the electrofishing of Harrison Lake, May 16, 2007 (N = 346, CPUE 346/hr)



The sample provided a limited number of black crappies. A total of 14 crappies were collected (CPUE: 14/hr). Black crappies tend to school in deeper water more than largemouth bass and bluegill. This makes it difficult to draw too many conclusions on the strength of the crappie population. If the population was really abundant, we most likely would have collected more crappies along the deeper edges of the shoreline cover. The distribution of the limited sample size is displayed on the length frequency histogram.

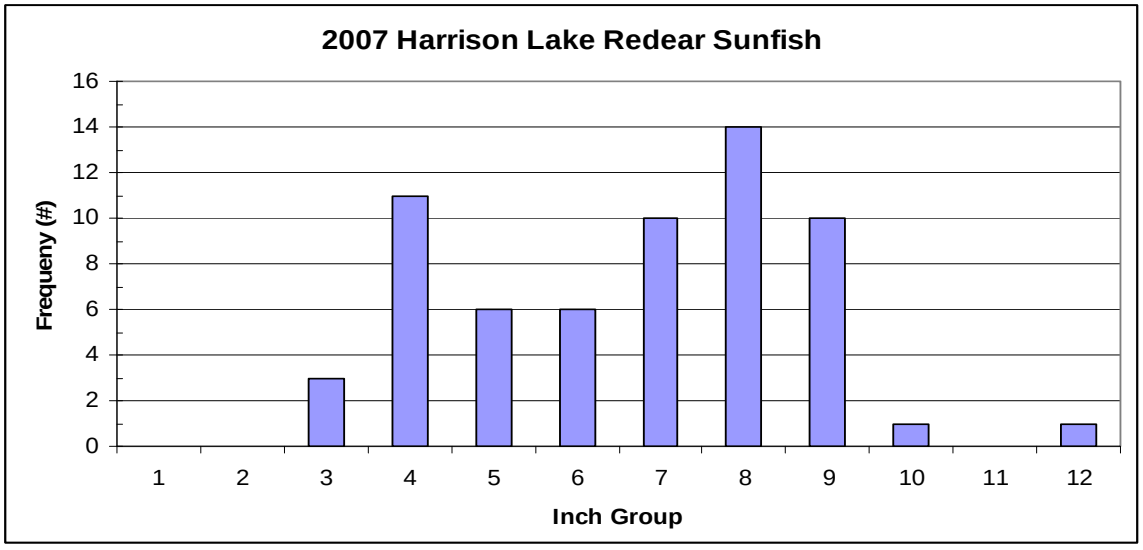
The black crappies ranged in size from 3 to 10 inches with the majority in the 7 to 9 inch range. The relative weight values for the black crappies showed some less than desirable values. The relative weight values for stock (86), quality (86) and preferred (80) are all well below the desired range of 95-100.

Figure 3. Length frequency of black crappies collected from the electrofishing of Harrison Lake, May 16, 2007 (N = 14, CPUE 14/hr)



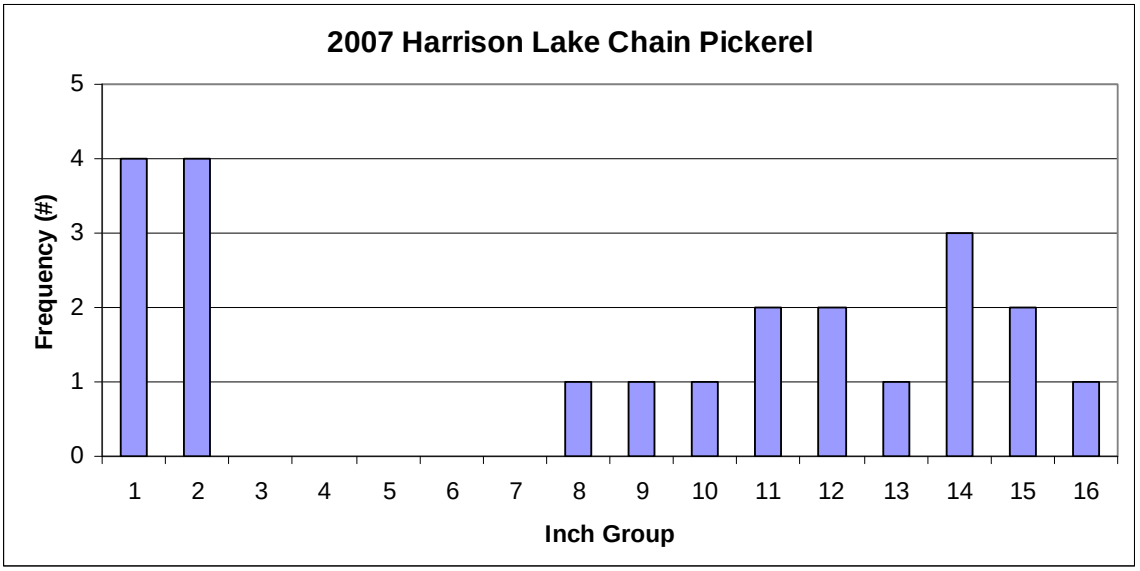
The sample revealed a decent population of redear sunfish. A total of 62 redear sunfish were collected (CPUE: 62/hr). The redear sunfish ranged in size from 3 to 12 inches with a large percentage of the sample in the 6 to 9 inch range. The upper flats of the lake produced the highest catch rate with 39 redear sunfish collected during run #2. The largest redear sunfish measured an impressive 12.52 inches and weighed 1.67 pounds.

Figure 4. Length frequency of redear sunfish collected from the electrofishing of Harrison Lake, May 16, 2007 (N = 62, CPUE 62/hr)



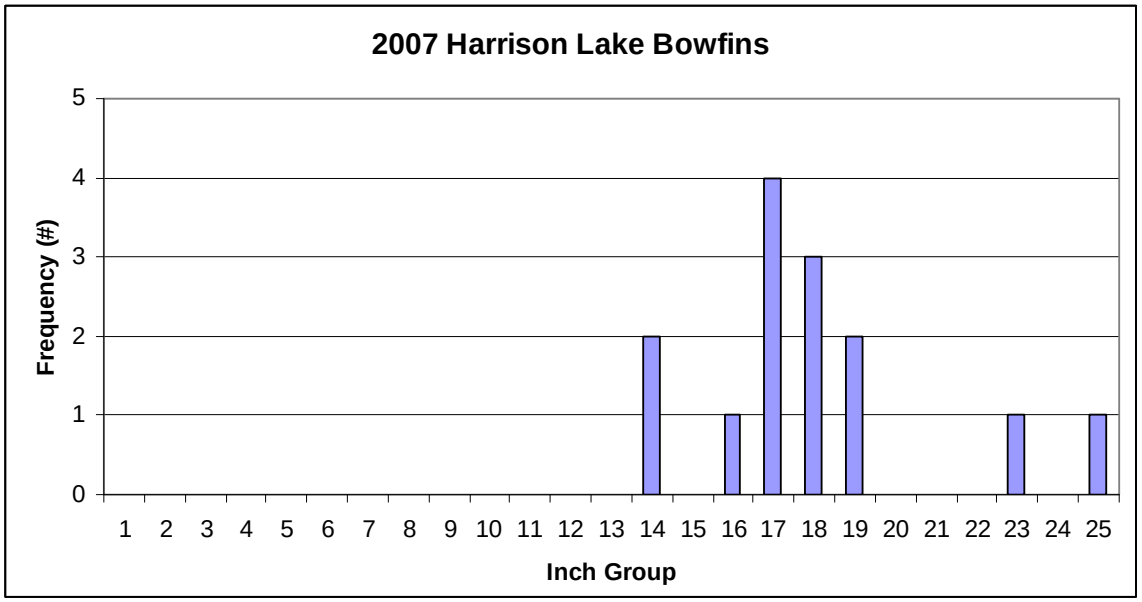
The sample revealed a fair number of chain pickerel. A total of 22 chain pickerel were collected (CPUE: 22/hr). A large percentage (36%) of the chain pickerel was from the 2007 spawn. These 1 to 2 inch fingerlings were most likely spawned around the middle of March time frame. The other 14 chain pickerel were in the 8 to 16 inch range. No chain pickerel larger than 16 inches were collected.

Figure 5. Length frequency of chain pickerel collected from the electrofishing of Harrison Lake, May 16, 2007 (N = 22, CPUE 22/hr)



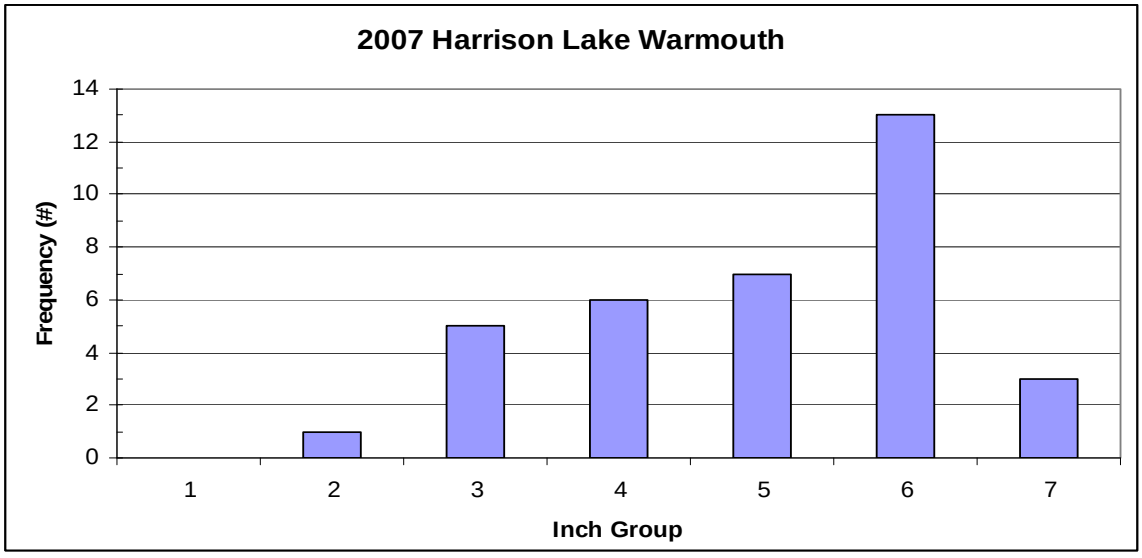
Harrison Lake provides some angling opportunities for bowfin. The sample collected a total of 14 bowfins (CPUE: 14/hr). The bowfins ranged in size from 14 to 25 inches with the majority of them in the 16 to 19 inch range. The sample collected half of the bowfins from the shallow flats of the upper lake region along the cypress trees. The bowfin will provide some excitement for anglers that are trying to catch bass and chain pickerel.

Figure 6. Length frequency of bowfins collected from the electrofishing of Harrison Lake, May 16, 2007. (N = 14, CPUE 14/hr)



The sample revealed the presence of a fairly abundant warmouth population. A total of 35 warmouth were collected (CPUE: 35/hr). The warmouth ranged in size from 2 to 7 inches with a high percentage in 5 to 7 inch range. The warmouth will provide some excitement for anglers fishing for bluegills.

Figure 7. Length frequency of warmouth collected from the electrofishing of Harrison Lake, May 16, 2007. (N = 35, CPUE 35/hr)



The lake's fishery has more diversity in the form of 8 additional species. These species collected in limited abundance were brown bullhead (3), yellow bullhead (3), common carp (1), creek chubsucker (39), flier (4), gizzard shad (11), golden shiner (6) and bluespotted sunfish (8).

Sample Summary

The electrofishing sample of Harrison Lake showed a diverse fishery consisting of 15 fish species. The largemouth bass population appears to be reasonably balanced even though a limited number of bass were collected. The length distribution graph easily shows the presence of various year classes. The average-sized bass measured 11.5 inches in length with the largest bass measured at 21.3 inches. I would recommend that anglers release as many largemouth bass as possible to protect the current population. The bluegill population appears to be very abundant with a total of 346 bluegills collected. The majority of the bluegills were less than 5 inches in length. Only 26 quality-sized bluegills were collected. The survey revealed a limited number of black crappies with only 14 collected. The majority of the black crappies were in the 7 to 10 inch range. The redear sunfish population appears to be in good shape with a high percentage of fish in the 6 to 9 inch range. The massive 12.52 inch redear sunfish that weighed 1.67 pounds was a very impressive catch. The chain pickerel population appears to be dominated by the presence of fish less than 16 inches in length. The bowfin population does not appear to be very abundant, but some respectable bowfins up to 25 inches were collected.

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